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# THE JOURNAL OF POLITICAL ECONOMY

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## POPULATION IN THE TWELFTH CENSUS.

FOR the student of economics the chief interest attaching to Vols. I and II of the twelfth census—the volumes on population—lies in the statistical estimate which he looks to find therein of the economic character, or value, or activity of the inhabitants of the country considered as productive power. He is interested in the mass and application of this prime economic force; that is to say, in the extent and growth of population, on the one hand, and, on the other, in the distribution of its members into industrial groups, as engaged in agriculture, manufactures, trade, commerce, or in some sort of manual, mechanical, or professional labor. He is interested in the direction of what Mayo-Smith has called the “labor-force” of the country “in cultivating the ground, in extracting minerals from the soil, in turning raw material into forms fitted to satisfy human wants, in transporting commodities from one place to another, in distributing products among the different members of the community, or in rendering personal services.” Other statistical information about population than that which regards its natural movement and industrial occupation may have great economic significance, as, for example, its geographical distribution, migrations and concentration in great urban centers, its

mortality and vitality rates, and its age and sex constitution; but the interest which underlies all others in the mind of the economist is that felt in the growth and occupation of the people.

The "curious modern traveler" of the eighteenth century who gave us his "late and particular observations" and "faithful account," geographical and historical of each nation, including "also an account of several wonderful animals, serpents, birds, etc., interspersed with many entertaining stories of each particular"—this interesting pioneer statistician has been supplanted in our own land by an army of fifty-odd thousand enumerators, officered by several hundred supervisors, experts, and directors, not to mention other agencies than the federal Census Bureau, and the mass and detail of our population data has of course manifolded correspondingly. In this field, as in other fields of economic activity during the nineteenth century, the problems of production have given place to those of consumption and distribution of statistical information. The machinery and technique of production have become wonderfully elaborated, and our statistics today do not in any respect resemble the interesting tales of a curious traveler, the elaborate speculations of a Sir William Petty, or the keen observations of an Arthur Young, except that the conclusions today often partake of the marvelous; but even these are machine-made and lack something of the charm which attached to the products of the statistical handicraftsman.

As regards numerical increase of population during the decade 1890-1900, the twelfth census has verified statistical predictions. During that period the rate of increase has considerably retarded. Our population in 1880 was slightly in excess of fifty millions, and the increase during the decade ending in 1890 amounted to 12,466,467, or 24.9 per cent. The increase for the decade ending in 1900 was 12,946,436, or 20.7 per cent. Should the increase continue to retard during the present decade at the same rate, it will mean that, with a larger initial population of 75,568,686, the actual numerical increase will be considerably less than for the preceding decade, the decline in the rate being

more than equivalent to the increase in population—this for the first time in our history. A decline in the rate has been recorded for each decade since 1850; but during the decade 1850–60 it was so slight as to be insignificant, and was a slight falling off from an exceptionally high rate during the decade 1840–50. The rate for the decade ending in 1860, 35.6 per cent. was still considerably above the average, and had been exceeded but twice, once in 1810 when the rate was 36.4, and again in 1850 by three-tenths of 1 per cent. In 1840 the rate had dropped to 32.7 per cent. The census enumeration in 1870 was so defective in the southern states as to vitiate the rates for two decades, and statisticians have awaited the publication of data for the decade ending in 1900 for a verification of their estimated rates of movement. The general facts concerning the rate of movement of population during the one hundred and ten years covered by the twelve censuses are given for the country at large and those several divisions into which it is divided in the following table:

PER CENT. INCREASE IN POPULATION FOR EACH DECADE,  
1790–1900

	DECADE ENDING										
	1900	1890	1880	1870	1860	1850	1840	1830	1820	1810	1800
The United States. ....	20.7	24.9	26.0 <sup>†</sup>	26.6 <sup>†</sup>	35.6	35.9	32.7	33.5	33.1	36.4	35.1
North Atlantic Division...	20.9	19.9	18.0	16.1	22.8	27.6	22.0	27.1	25.0	32.3	33.9
South Atlantic Division...	17.9	16.6	29.8	9.1	14.7	19.2	7.7	19.1	14.4	17.0	23.5
North Central Division...	17.6	28.8	33.8	42.7	68.3	61.2	108.1	87.4	193.1	474.8	....
South Central Division...	24.6	23.0	38.6	11.5	34.0	42.2	46.7	51.8	73.0	134.1	206.7
Western Division.....	33.1	71.3	78.5	60.0	246.1	....	....	....	....	....	....

It is interesting to note that, while the high rates of increase are for the far western group of states of the Pacific region, as might have been expected, this rate, 33.1 per cent., is not exceptionally high, being considerably below the average rate for the total population prior to 1860. During the three preceding decades the rate maintained in this group of states was two or three times that of the total population. It may be noted further that in this group lies the only state in the Union which has recorded a decrease in population during the decade—the

<sup>†</sup> Estimated.

population of Nevada having fallen off about five thousand souls, or 11.1 per cent. The two states for which the lowest rates of increase are recorded, lie in the north central division: They are Nebraska, whose population has increased 0.7 per cent., and Kansas, with an increase of 2.9 per cent.

For the first time in our history the rate of growth of population in the north Atlantic group, made up of the New England states, New York, New Jersey, and Pennsylvania, has exceeded the rate for the country at large—this by a small fraction of 1 per cent. For the first time in our history the south Atlantic and south central divisions show a higher rate than that maintained in the north central states, where the rate of increase is lower than that for any other division, and where, again for the first time in our history, the rate falls below the average rate for the total population of the country. In general it may be said that while it was generally expected that the census would indicate a retardation of the rate of growth, that retardation has been greater than anticipated, especially in the north central states including the two Dakotas, the lake region, and the Ohio river states. The decline of these states, of course, marks the termination of the period of settlement during which the rates were indicative rather of immigration movements than of natural growth.

Statistical data regarding population movements during the last century in this country and for other populations, have been abundant, of varying degrees of accuracy, at times misleading, and calculated generally to satisfy some aspect of public curiosity, or political exigency, or social philosophy. Wherever this mass of data has assumed the character of genuine information, however, it has occasioned a considerable modification of the various theories of population which have been from time to time propounded since Malthus wrote his essay on population. Speculation regarding population movements has been rife during the century, and in the rising tide of statistical data many preconceptions and generalizations have been hopelessly wrecked.

That aspect of population movements which has perhaps

more than any other occupied the minds of statisticians has been the statistical evidence bearing upon the Malthusian theory that population tends to outstrip its food supply. The clear and simple statement of the Malthusian theory that population tended to increase geometrically and food supply arithmetically recommended that theory to more or less uncritical popular support, and scientific writers, especially economists of the orthodox school have been slow to realize how little bearing the Malthusian formula really has upon actual population movements. Prior to its announcement statesmen and others had lived in the fear of a declining population and a consequent loss of political supremacy. They were suddenly seized with a fear of an increasing population which should so outstrip the means of sustenance that its members would be reduced to feeding upon one another. During the latter years of the century the old fear has returned. Political supremacy is felt to depend largely upon numerical strength, and governments are, therefore, resorting to various means of encouraging matrimony and large families. A stationary or decreasing population is regarded as a sign of weakness involving loss of political prestige. The statistical record of the century is an interesting one when taken in relation to the several theories of population which have been from time to time proclaimed, and have been generally unrelated to actual population movements in different countries. Indeed, it is only within the last quarter of the century that data have been available for putting such theories to the test of facts. The Malthusian generalization could not be verified statistically. It rested rather upon a weighing of human impulses, individual ambitions, intelligence and capacities against one another, and the theory amounted to an assertion that one fundamental instinct predominated over all the other natural tendencies. The experience of the century, however, clearly demonstrates that those other natural tendencies which Malthus more or less ignored, have been at least throughout certain very considerable populations, the predominating ones. Statistics demonstrate beyond question the fact that it is the tendency to accumulate wealth and in

general to increase the per capita consumption of products of labor, which has really predominated in every civilized community, over the natural tendency of population to increase, and this is particularly true wherever the ideals of democracy have taken hold upon a population; there the individual has sought to raise his material standard of living, and, in doing this, he has not reckoned any sacrifice too great. The law of population which one reads in statistical evidence is almost the exact converse of the Malthusian theory. As the accumulation of wealth increases and material and social welfare improves the movement of population retards.

Density of population can no longer be taken as a significant condition of its growth. In general it has been true that rates of natural increase have shown no tendency to retard as populations have become dense; on the contrary, those populations of greatest density early in the century have, on the whole, manifested the higher rates, and it remains true today that the denser populations are at the same time among those which manifest the highest rates of natural increase. There is no reason to presume that the degree of density attained within these populations constitutes, in and of itself, at the present time, any definite check upon their further increase. While it is true that the rates of movement or growth have not reacted in any fixed and determinable manner upon density or wealth, it may be laid down as a general law that the accumulation of wealth has invariably been accompanied by a retardation of natural movement. This has, of course, been conspicuously true of social classes within populations where the upper and middle classes have depended for their perpetuation, not upon natural increase, but upon recruiting from those groups wherein the average per capita incomes are lower.

The twelfth census demonstrates conclusively that this law is at work in our own population, where the retardation of the movement has been marked during the last decade, and where, as though to emphasize the insignificance of density as a condition of movement, the retardation has been most marked in the

sparsely settled section of the country.<sup>1</sup> In the north central states, certainly, population is not "pressing upon the means of subsistence," and the conditions of over-population and overcrowding do not exist. There is every reason to expect that the rate will continue to decline indefinitely, with the further accumulation of wealth and general improvement in material conditions within the country. The period of rapid growth of population in this country, as well as for European populations, was the first half of the nineteenth century, and the rapid numerical increase during this period was not inconsistent with the Malthusian conception that population tends to increase with and to press upon means of subsistence. The period was one marked by the economic exploitation of natural, wealth-producing forces, by colonization of new fields, by more economical and effective organization of industry, by extension of division of labor, and by the adoption of a systematic policy of exploiting and consuming the product of cheap oriental labor. But this economic development has continued at an accelerated pace during the latter half of the century, and it is during this latter half that the accumulation of wealth has gone on most rapidly. Under these conditions population ought to have increased more rapidly during the second half of the century. The rate has in fact, however, not accelerated, but has shown a marked tendency, and an almost universal one, to decline.<sup>2</sup> Population has shown no tendency to "people up" to a given standard, nor has it fol-

<sup>1</sup>The extent of the decline in the rate may, perhaps, be best indicated by figuring out the growth of population during the present century on the basis of the two rates. On the supposition that the rate of increase maintained during the decade of 1880-90 continued throughout the present century our population at the end of the twentieth century would exceed seven hundred million. Gladstone estimated our probable population at that date at six hundred million. The rate for the decade 1890-1900 would, if maintained during the century, give a population in excess of four hundred and fifty million. On the supposition that the rate declines from decade to decade, as it has during the last two decades, our population will barely equal one hundred and seventy million. Should the rate of retardation decline progressively our population may be indefinitely less than one hundred and seventy million.

<sup>2</sup>The Russian population is an exception. Its rate of natural increase has risen from decade to decade. This is probably due to the fact that Russia with its increased population is still but sparsely settled, and the conditions are analogous to those existing in this country during the first half of the last century.



lowed any preconceived laws in accordance with which such movements have been supposed to occur. Population has not increased most rapidly in those countries possessed of greatest material resources and accumulated wealth; quite the contrary. The one population which is today at a standstill numerically is at the same time the population with perhaps the second greatest per capita holding of wealth in the world; while Russia, with the highest rate of natural increase, has probably the lowest per capita accumulation of wealth. In general, the conclusion seems warranted that the rate of natural increase in any population tends to decline as its per-capita holding of wealth increases beyond a certain point. The desire to accumulate wealth increases with the accumulation of it, and at some indefinite point becomes the paramount motive of human action. At that point the movement of population begins to retard, and that point at which the movement of population begins to be checked by the rising standard of living has certainly been passed in the growth of our own population, as a whole—as it has been passed long since by certain industrial and social groups, the “upper classes,” within the population.

Speculations regarding the movement of population are, however, of less economic consequence than are the facts regarding the industrial distribution or grouping of its members, *i. e.*, the actual disposition of the country's labor force at the present time. The difficulties encountered here are far greater than those encountered in the work of enumeration. The amount of information which can be elicited from an individual by a series of inquiries put to him once in ten years is necessarily limited, especially when the capacity of the average untrained enumerator for making nice discriminations is borne in mind. In the twelfth census an effort has been made to preserve continuity of data by adopting the same general classification of occupations as that used in the census of 1890. This classification distributes the population into five general groups of occupations, as follows: (1) agricultural pursuits, (2) professional service, (3) domestic and personal service, (4) trade and transportation, (5) manufacturing and mechanical pursuits. Under these five heads

303 groups and subgroups of occupations are specified, an increase of eighty-five over the number designated in the census of 1890, with which, it is explained, the returns for 1900 have been made comparable as far as possible.

It appears from the tables that there has been a slight increase in the percentage of population ten years of age or over, engaged in "gainful occupations," the per cent. so engaged being 50.3 in 1900, as against 48.0 in 1890, and 47.1 in 1880. This increase appears also in each sex group: of the male population ten years of age and over in 1900, 80.0 per cent. were engaged in gainful occupations, as against 77.3 per cent. in 1890, and 78.7 per cent. in 1880; for the female population the per cents. were respectively 18.8, 17.0, and 14.7. The increase in these percentages is undoubtedly due in part to those changes in the age and sex constitution of the population which are direct consequences of the retarded rate of movement or growth of the total population. Some indication of the change in the age grouping of the population may be gathered from the fact that the school population, including those from five to twenty years of age, increased during the decade only 15.3 per cent., the population ten years of age and over, 22.0 per cent., while the total population, all ages, increased 20.7 per cent. This indicates roughly the relative increase in the higher age groups, which are, of course, those groups showing the highest percentage occupied in gainful pursuits. For the age group ten to twenty years there has been a decline of approximately 1 per cent. and for the higher age groups an increase. It would appear however, that there has been a slight increase in the employment of women and girls during the two decades, since the sex distribution of the total population remains unaltered, the percentage of males being 51.2 of the total population. Nor has the sex distribution of population greatly altered for the several geographical divisions except that there has been a decrease in the excess of males in the far western states.

The general facts regarding the distribution of the gainfully occupied population are stated in the census as follows:

Of the 29,074,117 persons engaged in gainful occupations in 1900 for the

mainland of the United States 10,381,765, or 35.7 per cent. are engaged in agricultural pursuits, as against 37.7 per cent. in 1890, and 44.3 per cent. in 1880. The whole number of persons engaged in manufacturing and mechanical pursuits is 7,085,992, constituting 24.4 per cent. of the gainful workers in 1900 as compared with 25 per cent. in 1890, and 21.8 per cent. in 1880. These losses in the proportions of persons engaged in agricultural and manufacturing pursuits are offset by corresponding gains in the proportions of persons engaged in professional service, in domestic and personal service, and in the pursuits of trade and transportation. The largest proportional increase is that for persons in trade and transportation, this class constituting 16.4 per cent. in 1900 as compared with 14.6 per cent. in 1890, and 10.7 per cent. in 1880.

These general percentages are, however, of comparatively little significance owing to the composition of the several industrial groups, and to the lack of any consistent principle of classification. The classification is, as already noted, practically that of the previous census, with some further division into minor occupation groups, and it is stated that

an attempt was made at the present census, just as in 1890, to classify occupations with respect to the kind of work done or character of service rendered, rather than according to the article made or worked upon, or the place where the work was done, and detailed instructions in accordance with this general purpose were given to the census enumerators.

It has often been pointed out that the general classification is, nevertheless, one by industries, and it will appear from an examination of the specific designation within these larger groups that the classification by industry, rather than by character of work, is carried out in considerable detail. These two principles of classification are obviously conflicting, and the resultant grouping is in consequence one of little significance; it is neither one by trades, crafts, or occupations, on the one hand, nor by industries, on the other, whether this is due to the inherent difficulty of applying universally any single principle of classification or not, it is certainly unfortunate, and vitiating. The general insignificance of these main groups may be inferred from the fact that the last census transferred bodily the "fishermen and oystermen," and "miners and quarrymen" from agricultural to "manufacturing and mechanical pursuits." In 1890 stationary engineers and firemen were classed as rendering

"domestic and personal service," and "officials of mining and quarrying companies," under "trade and transportation;" these have been transferred in 1900 to the "manufacturing and mechanical group."

In writing of the scheme of classification in the eleventh census Mr. Gannett expressed the following judgment :

There is probably no subject connected with the census concerning which there seems to be less clearness of purpose or plan than the classification of occupations. What the purpose of the statistics of occupations is, or the character of the information which such statistics are designed to present, is not made clear by any existing classification.

His judgment holds good, generally speaking of the twelfth census statistics of occupations, as will become apparent from a cursory examination of specific groups.

Those engaged in agricultural pursuits number 10,381,765, or approximately one-third the total population employed in gainful pursuits. If we ask what principle of classification has been adopted with reference to this important industrial group, it will appear that the census office has, willingly or wilfully, done all of those things which it has declared it purposed not to do. It has classified "agricultural laborers"—the first and, with one exception, the largest group in the whole category of "occupations"—into three groups: (1) "farm and plantation laborers," (2) "farm laborers (members of family)," and (3) "garden and nursery laborers." Here then is classification according to place in which labor is performed; while the second subgroup is differentiated by relationship, and the whole group "agricultural laborers" is divided out from the group of "farmers, planters, and overseers" on the double principle of proprietorship and managing authority. The groups of "florists, nurserymen, and vine-growers," "fruit growers," "turpentine farmers and laborers," and "milk farmers," are based upon "articles made or worked upon." No one of these principles is consistently applied throughout the group. This being true, one is led to ask whether, since consistency is abandoned once for all, it might not be advisable to recognize certain natural lines of cleavage in our agricultural population. We have given a group of "tur-

pentine farmers and laborers," another of "apiarists," another of "fruit growers." Are there not other groups of greater significance than these, even such as the cotton growers, tobacco planters, and grain farmers?

The principle of classification adopted for the second group, those engaged in professional service, numbering 1,258,739, appears to have been more clearly defined. The more satisfactory character of the grouping here is due, no doubt, to the fact that the professions themselves are more definitely differentiated than are occupations in general. Actors, architects, artists, clergymen, journalists, authors, lawyers, physicians, and teachers form well-defined professional groups. The question may, perhaps, be raised whether the class of engineers (civil mechanical, electrical, and mining) and surveyors belongs here or under manufacturing and mechanical pursuits. A mining engineer might, perhaps, better be related to that industrial group which includes officials, foremen, and overseers of mines as well as the miners themselves, if we are to preserve the industrial grouping at all. The "inventor" occupies a rather anomalous position in the class of "architects, designers, and draughtsmen." We look in vain for any group of artists proper, including sculptors, painters, musicians, architects, actors, and authors. Nor can such a group be constructed out of the data given. We have given a class of actors, and of architects, but musicians are grouped with teachers of music not in colleges, and "artists" with teachers of art (except by the process of elimination it is impossible to determine what sort of artists are included in this group); while the class of authors is hopelessly lost among "literary and scientific persons," which excludes journalists, and includes with "authors and scientists," a class of "librarians and assistants." and of "chemists, assayers, and metallurgists." We should certainly expect to find a literary group somewhat differently composed, including journalists, authors and other writers, and excluding librarians and metallurgists.

Those engaged in "domestic and personal service" constitute a large class, numbering 5,580,657, made up of the odds and ends of occupations which do not easily fall into any other

class. The largest single group here is "laborers (not specified)" 2,629,262. This group of general laborers appeared in the eleventh census, and statisticians have indulged the hope that in the present census these laborers could be properly "specified" and distributed. An effort has been made to do this, but it has been attended with little success. Four small subgroups of "elevator tenders," "laborers (coal yard)," "longshoremen," and "stevedores," constituting altogether about fifty thousand, have been separated out, leaving more than two and a half million "general laborers," whose occupations are not given. The rate of increase in this group has been over 32 per cent., while population has increased but 20.7 per cent., and the relative increase of the group would appear to be due to greater carelessness on the part of enumerators in 1900, as compared with those of 1890. No community of interest, it may be observed, underlies the occupations included under the general head of "domestic and personal service." The barber, the bartender, and boarding-house keeper, to take the three services first in the list, are typical groups. They have nothing in common. Nor is the service of the bartender any more personal than that of the milliner, for example, classed as manufacturing and mechanical, or the grocer classed under trade and transportation. The laundry business, classed as domestic and personal service, is certainly as properly an industry as a bleachery and dye works establishment. Trained nurses would seem to be as professional in the service they render as are engineers, librarians, and theatrical managers. On the whole, a better heading for this general group would be "all or any other service."

Under "trade and transportation," numbering 4,778,233, are designated miscellaneous occupations more or less remotely associated with the economic services of distribution and transport. It is difficult to explain on rational grounds the association of these two services. The character of this group may be inferred from the following list of designations (not exhaustive): agents (insurance and real estate), bankers, boatmen and sailors, bookkeepers, clerks, commercial travelers, draymen, foremen, hostlers, hucksters, merchants, officials in banks and companies,

steam and street railway employees, telegraph and telephone linemen and operators. Of many of these groups, as for example the group of copyists, of stenographers, and telephone and telegraph operators, it is true that they are as likely to be associated with manufacturing or professional services as with the service of trade or transportation.

What has been said with reference to the other groups applies equally to the fifth and last, those engaged in "manufacturing and mechanical pursuits." Here the principle of classification by "occupation," is practically abandoned, and the principle of classification "according to the article made or worked upon" generally adopted. The subdivisions in this group are indicated as follows: building trades; chemicals and allied products; clay, glass, and stone products; fishing and mining; food and kindred products; iron and steel and their products; leather and its finished products; liquors and beverages; lumber and its manufactures; metals and metal products other than iron and steel; paper and printing; textiles; and miscellaneous industries. No attempt is here made to bring together into one group those similarly occupied, as, for example, factory operatives, or those skilled in some craft or trade, for comparison with unskilled manual labor. Take for example, the group of occupations under "paper and printing." Here are five general designations: (1) bookbinders, (2) box-makers (paper), (3) engravers, (4) paper- and pulp-mill operatives, (5) printers, lithographers, and pressmen. Here is a typical violation of first principles in the linking of an occupation, printing, with an industry, the paper business, and the confusion which follows is a natural consequence. Any scheme of classification which places engravers in a group of five designations, one of which is paper-box makers, and another paper- and pulp-mill operatives, is obviously faulty, a *reductio ad absurdum* of our general scheme.

It would be a convenience to find occupations grouped rationally in the census, but this is a matter rather of popular interest than of scientific consequence. The statistician expects in any event to reclassify his data for special purposes, to make up his own general groups as he may have occasion to do. No one

scheme is adequate for his purposes. What is of prime consequence to him is that the analysis shall be carried far enough to give him what may be called prime industrial groups—that is to say, groups which are in every instance sufficiently homogeneous to be dealt with as units for constructive purposes. These prime industrial factors may be arranged alphabetically or in accordance with any other scheme. The statistician is fairly indifferent whether, for example, the manual laborers are given in one group or are distributed among a number of industries, provided the grouping in each industry is of such a character as will enable him to separate out unerringly the manual laborers from the skilled workmen. This is not done in the occupation statistics of the twelfth census. The Census Bureau has had one excuse for adopting the present scheme of classification; it is practically the scheme employed in the tenth and eleventh censuses, and by its perpetuation in the twelfth census the continuity of data is preserved to a certain extent; but it is decidedly unfortunate and humiliating that it should become permanently foisted upon the work of that office.

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